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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,687	12/31/2003	Francis Joseph Kronzer	NPI-51 (19673)	2173

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EXAMINER	
CHAN, SING P	

ART UNIT	PAPER NUMBER
1734	

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06/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/749,687	KRONZER, FRANCIS JOSEPH	
	Examiner	Art Unit	
	Sing P. Chan	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *65-107* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *65-107* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 65-69, 71, 72, 74, 77-82, 86, 87, 89-92, and 95-103 are rejected under 35 U.S.C. 102(b) as being anticipated by Tada et al (U.S. 6,017,636).

Regarding claims 65, 91, 92, 96, and 100, Tada et al discloses a method of transferring an image to a substrate. The method includes providing a transfer sheet A with a release sheet and a layer of urethane emulsion resin (Col 4, lines 41-62) with acrylic emulsion added (Col 5, lines 19-35) and a transfer sheet B with a release sheet, and upper layer, an intermediate layer, and lower layer (Col 5, lines 52-55), forming an image layer on the transfer sheet B (Col 7, lines 32-39), adhering the two transfer sheets together, peeling the release sheet from transfer sheet B, placing the layer exposed by peeling the release sheet onto the substrate, and transfer the laminate with heat and pressure to the substrate, and peeling the release sheet from transfer sheet A (Col 7, lines 10-25) with the image sheet between the transfer film of transfer sheet A and the substrate. Furthermore, the lower layer includes aromatic hydrocarbon to allow for accelerated softening to allow the layer to soften or melt to penetrate the inner surface of the object or substrate, i.e. melting before the intermediate layer melts, which has the same resin composition as the adhesive layer but without the aromatic

hydrocarbon therefore, providing the intermediate layer as a flow resistant layer (Col 6, lines 40-64). Also, Tada et al discloses the resin of a low softening point (about 70°C to 120°C) is used as the lower layer or adhesion layer and resin of the upper layer or flow resistant layer contain fill and have a softening point of 80°C to 200°C. (Col 15, lines 21-30) Therefore, Tada et al discloses embodiment of an adhesive layer with a softening point at 120°C and a flow resistant layer with a softening point at 200°C, which at the highest transfer temperature of 180°C the adhesion layer would ready flow but the flow resistant layer would not.

Regarding claims 66-69, Tada et al discloses the release sheet includes synthetic papers, plastic films, and papers (Col 4, lines 7-16), which papers are cellulosic material and is coated with an aqueous emulsion of acrylic-urethane resin on the back side of the sheet to prevent folds or curling (Col 4, lines 21-31), which would have no tack at a transfer temperature of 177°C to allow the papers to function as release sheet.

Regarding claims 71 and 72, Tada et al discloses the imaging receiver sheet is transferred by heat and pressure applied by either an iron or industrial high pressure press machine. (Col 7, lines 15-17 and Col 7, lines 40-48)

Regarding claims 74 and 101, Tada et al discloses the resin for the transfer sheet A or overlay transfer film includes the urethane emulsion has a softening point or melt at a temperature of 120°C or higher. (Col 4, lines 58-61)

Regarding claims 77, 78 and 102, Tada et al discloses the adhesive layer includes urethane and polyester resin, which have soften point or melting point of 120°C or higher. (Col 4, lines 58-61)

Regarding claims 79-82 and 103, Tada et al discloses the intermediate layer or flow resistant layer includes urethane and polyester resin (Col 6, lines 57-64), which are crosslinkable polymer and include crosslinking agent such as epoxy or isocyanate cross linking agent (Col 13, lines 39-43).

Regarding claim 86, Tada et al discloses the intermediate layer includes metal micro-power, which is an opacifier. (Col 6, lines 65-66)

Regarding claim 87, Tada et al discloses upper layer is an image receptive layer, which overlies the intermediate layer or flow resistant layer. (Col 5, lines 52-55 and Col 6, lines 20-29)

Regarding claims 89 and 90, Tada et al discloses the upper layer has a thickness of 5-40 μm (Col 6, lines 18-19), intermediate layer or flow resistant layer has a thickness of 5-40 μm (Col 7, lines 3-4), and lower layer has a thickness of 5-20 μm (Col 6, lines 52-53) for a total thickness of 15-100 μm, which is 0.59 to 3.937 mils.

Regarding claim 95, Tada et al discloses the adhesive layer includes aromatic hydrocarbon, which is uncrosslinked. (Col 6, lines 40-49)

Regarding claim 97, Tada et al discloses the release support or paper includes a coating of talc and/or starch for sealing one or both side of the paper, which would function as a tie coat. (Col 4, lines 17-20)

Regarding claims 98 and 99, Tada et al discloses the transfer is performed at a temperature of 120 to 180°C. (Col 7, lines 10-25)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636) as applied to claim 40 above, and further in view of Kronzer (U.S. 4,863,781).

Tada et al as disclosed above is silent as to the transfer sheet includes a conformable layer overlaying the base layer and underlaying the release layer. However, providing a conformable layer overlaying the base layer and underlaying the release layer is well known and conventional as shown for example by Kronzer. Kronzer discloses a melt transfer web. The web includes a conformable layer overlaying the base layer and underlaying the release layer (Col 5, lines 32-35)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a conformable layer overlaying the base layer and underlaying the release layer as disclosed by Kronzer in the method of Tada et al to allow the transfer film to contact uneven workpiece. (See Kronzer, Col 5, lines 28-31)

5. Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636) as applied to claims 35, 55, and 60 above, and further in view of Saito et al (U.S. 6,043,194).

Tada et al discloses the transfer sheet A includes a layer of urethane emulsion resin (Col 4, line 58 to Col 5, line 7) and the transfer sheet B includes an upper layer of urethane resin (Col 6, lines 20-21) but is silent as to the protective overlay transfer film is formed of a different material than the imaged transfer film. However, providing a protective overlay transfer film formed of different material than urethane is well known and conventional as shown for example by Saito et al. Saito et al discloses a method of transferring a protective layer. The method includes providing a protective overlay film and transferring the film onto a print (Col 11, lines 22-26) with the film formed of aromatic polycarbonate (Col 5,lines 31-37).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an overlay protective transfer film formed of aromatic polycarbonate as disclosed by Saito et al in the method of Tada et al, which is a different material than the transfer sheet B layers to provide light fastness to the print and prevent fading of the dye constituting the image by light. (See Saito et al, Col 6, lines 61-66)

6. Claims 75, 76, and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636) as applied to claims 35, 55, and 60 above, and further in view of Hare (U.S. 5,948,586).

Tada et al as disclosed above is silent as to the overlay film includes film forming binder of a powdered thermoplastic polymer and is an ink compatible layer. However, providing an overlay film with powdered thermoplastic polymer is well known and conventional as shown for example by Hare. Hare discloses a method of transferring an image to fabric. The method includes providing a transfer image receptor element with an image receptive film layer comprising a film-forming binder formed of powdered thermoplastic polymer, which melts in a range from 65°C to 180°C. (Col 12, lines 9-52)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a transfer image receptor element with an image receptive film layer comprising a film-forming binder formed of powdered thermoplastic polymer, which melts in a range from 65°C to 180°C as disclosed by Hare in the method of Tada et al to allow the transfer sheet to receive image from any printer such as color laser copier and/or printer and ink jet printers. (See Hare, Col 7, lines 16-27)

7. Claims 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636) as applied to claim 65, further in view of Kronzer (U.S. 2002/0081420).

Tada et al as disclosed above is silent as to the intermediate layer or the flow resistant layer has a melt flow index of less than the adhesive layer by a factor of at least 10 or at least 1000. However, providing a flow resistant layer with a melt flow index of less than the adhesive layer by a factor of at least 10 or at least 1000 is well known and conventional as shown for example by Kronzer. Kronzer a heat transfer material. The heat transfer material includes a peelable layer film, i.e. adhesive film,

used to melt and penetrate into fabric or other bendable material and an opaque layer, i.e. flow resistant layer, on top of the peelable layer film (Paragraph 21), and the flow resistant layer has a melt flow index of less than the adhesive film by a factor of at least 10 or at least 1000 (Paragraph 36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a melt flow resistant layer with a melt flow index less than the adhesive film by a factor of at least 10 or at least 1000 as disclosed by Kronzer in the method of Tada et al to prevent the flow resistant layer to flow and penetrate into the fabric during transfer and prevent a gray or chalky appearance. (See Kronzer, Paragraph 36)

8. Claims 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636) as applied to claim 65, further in view of Kronzer (U.S. 2002/0146544).

Tada et al as disclosed above is silent as to the intermediate layer or the flow resistant layer has a melt flow index of less than the adhesive layer by a factor of at least 10 or at least 1000. However, providing a flow resistant layer with a melt flow index of less than the adhesive layer by a factor of at least 10 or at least 1000 is well known and conventional as shown for example by Kronzer. Kronzer a heat transfer material. The heat transfer material includes a peelable layer film, i.e. adhesive film, used to melt and penetrate into fabric or other bendable material and an opaque layer, i.e. flow resistant layer, on top of the peelable layer film (Paragraph 21), and the flow

resistant layer has a melt flow index of less than the adhesive film by a factor of at least 10 or at least 1000 (Paragraph 29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a melt flow resistant layer with a melt flow index less than the adhesive film by a factor of at least 10 or at least 1000 as disclosed by Kronzer in the method of Tada et al to prevent the flow resistant layer to flow and penetrate into the fabric during transfer and prevent a gray or chalky appearance. (See Kronzer, Paragraph 29)

9. Claims 93 and 94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636).

Regarding claim 93, Tada et al as disclosed above is silent as to first separating the first base form the transfer layers, positioning the peeled transfer layer onto the substrate, and thereafter, positioning the second heat transfer sheet adjacent to the peeled transfer layers. However, a change of sequence of processing steps is a prima facie obvious in the absence of new or unexpected results. In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (See MPEP 2144.04 [R-1], section IV)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the layers and sheets in any order in the method of Tada et al, which is a prima facie obvious in the absence of new or unexpected results. (See MPEP 2144.04 [R-1], section IV)

Regarding claim 94, Tada et al discloses peeling the release form the second or sheet A from the urethane layer. (Col 7, lines 15-25)

10. Claims 104-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tada et al (U.S. 6,017,636).

Regarding claim 104, Tada et al discloses a method of transferring an image to a substrate. The method includes providing a transfer sheet A with a release sheet and a layer of urethane emulsion resin (Col 4, lines 41-62) with acrylic emulsion added (Col 5, lines 19-35) and a transfer sheet B with a release sheet, and upper layer, an intermediate layer, and lower layer (Col 5, lines 52-55), forming an image layer on the transfer sheet B (Col 7, lines 32-39), adhering the two transfer sheets together, peeling the release sheet from transfer sheet B, placing the layer exposed by peeling the release sheet onto the substrate, and transfer the laminate with heat and pressure to the substrate, and peeling the release sheet from transfer sheet A (Col 7, lines 10-25) with the image sheet between the transfer film of transfer sheet A and the substrate. Furthermore, the lower layer includes aromatic hydrocarbon to allow for accelerated softening to allow the layer to soften or melt to penetrate the inner surface of the object or substrate, i.e. melting before the intermediate layer melts, which has the same resin composition as the adhesive layer but without the aromatic hydrocarbon therefore, providing the intermediate layer as a flow resistant layer (Col 6, lines 40-64). Tada et al as disclosed above is silent as to first separating the first base form the transfer layers, positioning the peeled transfer layer onto the substrate, and thereafter, positioning the second heat transfer sheet adjacent to the peeled transfer layers. However, a change

of sequence of processing steps is a prima facie obvious in the absence of new or unexpected results. In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (See MPEP 2144.04 [R-1], section IV)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the layers and sheets in any order in the method of Tada et al, which is a prima facie obvious in the absence of new or unexpected results. (See MPEP 2144.04 [R-1], section IV)

Regarding claim 105, Tada et al discloses the resin for the transfer sheet A or overlay transfer film includes the urethane emulsion has a softening point or melt at a temperature of 120°C or higher. (Col 4, lines 58-61)

Regarding claim 106, Tada et al discloses the adhesive layer includes urethane and polyester resin, which have soften point or melting point of 120°C or higher. (Col 4, lines 58-61)

Regarding claim 107, Tada et al discloses the intermediate layer or flow resistant layer includes urethane and polyester resin (Col 6, lines 57-64), which are crosslinkable polymer and include crosslinking agent such as epoxy or isocyanate cross linking agent (Col 13, lines 39-43).

Response to Arguments

11. Applicant's arguments filed April 19, 2007 have been fully considered but they are not persuasive.

12. In response to applicant's argument of Tada et al does not teach a flow resistant layer, the examiner disagrees, since Tada et al does recite an intermediate layer having the same resin composition as the adhesive layer, but without the aromatic hydrocarbon to allow for accelerated softening to allow the layer to soften or melt to penetrate the inner surface of the object or substrate and furthermore, Tada et al discloses the intermediate layer also includes polyester resin, which the upper layer (6) and the urethane emulsion resin layer (2) (See Tada et al, Col 4, line 58 to Col 5, line 7 and Col 6, lines 20-21), which has the same composition polyurethane resin and would soften or melt at the same temperature and therefore, these layers are the overlay layers that will melt-flowable at the transfer temperature. The intermediate layer with the additional polyester resin without the aromatic hydrocarbon will have a higher melting point or glass transitional point than either the adhesive layer (4) and the upper layer (6). (See Tada et al, Col 6, lines 57-64) The examiner cites Hollister et al (U.S. Re. 32,039) for teaching a barrier layer with condensation polymers such as polyester having a higher glass transition temperature or melting point (See Hollister et al, Col 8, lines 51-55). Therefore, Tada et al recites the instant invention.

13. Response to applicant's argument that none of the cited references teach or suggest the melt flow index of the flow resistant layer is less than the melt flow index of the adhesive layer, the examiner disagrees, since the examiner cited Kronzer (U.S. 2002/0081420) and Kronzer (U.S. 202/0146544) for teaching the transfer film with an opaque coating must not melt and flow into the fabric but the peelable film or adhesive film should melt and flow with the melt index of flow resistant layer is less than the melt

flow index of peelable layer or adhesive layer. (See Kronzer '420, Paragraph 36 and Kronzer '544, Paragraph 29)

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P. Chan whose telephone number is 571-272-1225. The examiner can normally be reached on Monday-Thursday 7:30AM-11:00AM and 12:00PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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